

REMARKS

Claims 1-17 are presented for examination. Claims 1, 9 and 17 have been amended to correct typographical errors. Claims 18-20 have been added to assure Applicants of a full measure of protection of the scope to which they deem themselves entitled. Claims 1, 4, 9 and 15-17 are independent.

Claims 1-17 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,385,174 (Li).

The present invention relates to a radio network routing protocol that reduces the amount of protocol traffic in mobile network routing, and overcomes bandwidth usage problems encountered in conventional mobile networks by providing a protocol that provides for flooding of link state information in order to generate routing information and also provides for a shortened length of each protocol message.

More specifically, independent Claim 1 is directed to a router in a radio network that includes functional units that allow it to generate network topology information in response to received link state information, place the topology information in a routing table and send the routing table to another router in the network. As specified in Claim 1, each router in the network contains a memory that stores a routing table, a receiver for receiving link state routing information, and a processor. The function of the processor is to determine the status of connections in the network from received link state information, then to generate network topology information from the determined

connection status, to place the generated topology information in a routing table and to transmit the network topology information in the routing table to another router in the network.

That is, the present application discloses all aspects of a radio network routing protocol that reduces the amount of protocol traffic in mobile network, and Claim 1 is intended to include the apparatus consisting of the physical components of the router and their functions. Claim 2, dependent from Claim 1, is directed more specifically to a router construction in which the processor transmits the network topology information at a predetermined cycle. Claim 3, dependent from Claim 1, is directed to the apparatus of Claim 1 that further includes a transmitter for transmitting messages including network topology information that is retrieved from the routing table.

Initially, Applicants note that Li '174 is available as prior art against the present application only to the extent of what is disclosed in provisional application No. 60/164,940, benefit of which Li '174 claims, because Li '174 itself has a filing date after that of the present application:

"The 35 U.S.C. 102(e) date of a reference that did not result from, nor claimed benefit of, an international application is its earliest effective U.S. filing date, taking into consideration any proper benefit claims to prior U.S. applications under 35 U.S.C. 119(e) or 120 *if the prior application(s) properly supports the subject matter used to make the rejection.*" (emphases added) MPEP § 706.02(f)(1).

Therefore, any subject matter disclosed in Li '174 itself, but not disclosed in Li's prior provisional application No. 60/164,940, is not prior art against the present application, and

cannot be used as the basis for a rejection of any claim in the present application. For the following reasons, it is believed that each of the independent claims contains at least one recitation that is not disclosed or suggested by the Li provisional application, which for brevity will be referred to as "*Li PA*".

Li PA relates to a network update system in which updates are stored in a queue (a FIFO buffer; Section 5.2, at the top of page 6) and broadcasted by cluster head nodes solely on the basis of a pre-set amount of time having elapsed since the last broadcast transmission by the particular head node in question. Such transmission are made by using cluster head beacons and cluster member beacons, which are sent at predetermined fixed intervals TCH, for cluster head beacons, and TCM for cluster member beacons (Section 5, at the bottom of page 3). A link state advertisement (LSA) is received by member nodes or neighboring cluster head nodes. After receiving a link state advertisement, a comparison is done by the node to determine if it already has a copy of the advertisement. If the node does not have a copy of the LSA, the LSA gets processed (updates the OSPF database or updates the routing table, and then floods the LSA; Section 5.1, Figure 3 at the top of page 5).

While *Li PA* briefly displays a step for processing new LSAs, but provides no hint as to what this processing is, beyond saying that the result is used to update a router table. Claim 1 recites that the processor first determines the status of connections in the network from received link state information, and then *generates network topology information based on the determined connection status information before it places the*

generated network topology information in the routing table. Nothing has been found in *Li PA* that would teach or suggest doing anything other than simply updating an OSPF database and a routing table and then flooding the information (see Fig. 3). Even if it is assumed for argument's sake that the system discussed in *Li PA* met the recitation of determining the status of connections in the network, there is certainly nothing in *Li PA* that would suggest performing an additional step of generating network topology information from the results of the determining processing. Moreover, the *Li PA* system appears merely to flood a received LSA, rather than flooding using data from the node's own routing table, as is done by the processor of the router of Claim 1. For all these reasons, Claim 1 is deemed to be clearly allowable over *Li PA*.

Claims 2, 3 and 18, which depend from Claim 1, are allowable for the same reasons as is Claim 1 and are allowable in addition by virtue of reciting other features that are not taught or suggested by *Li PA*. Claim 2 recites a router that transmits network topology information. Nothing in *Li PA* discusses transmission of generated network topology information. *Li PA* merely discusses transmission of link state advertisements, and re-transmission of received LSAs. Claim 3 recites a router that has a transmitter for transmitting a message including network topology information. *Li PA* mentions neither a separate transmitter nor transmission of network topology information, only of the LSAs. Claim 18 recites that the processor, responsive to making a determination that no other router is currently accessible, performs control processing to determine how often and when to attempt to gather information relating to the network topology (see, for example,

step S6 in Fig. 4 and the corresponding description in the specification of the present application). Applicants submit that none of these features are taught or suggested by anything that has been found in *Li PA*, and that each of these dependent claims is therefore patentable over *Li PA* because of its own recitations, as well as by depending directly or indirectly from Claim 1.

Independent Claim 16 is similar to Claim 1, although drafted in means-plus-function form, and is believed to be patentable for at least the same reasons as discussed above in connection with Claim 1.

Independent Claims 9 and 17 are directed to routing systems, which are recited as including routers having features similar to those recited in Claims 1 and 16, respectively, as well as additional features. The router of Claim 9, for example, has a processor which, responsive to received link state information, determines router connection information in the network, collects the determined information, and generates the network topology information from the collected router connection information. The router that is a part of the system of Claim 17 also has means for performing the same processing as is done by the router of Claim 9. Claims 9 and 17 are therefore also clearly allowable over *Li PA* for the same reasons as is Claim 1, and by virtue of the additional collecting processing done by the router of Claim 9 and the means for collecting of the router of the system of Claim 17, as well.

Claims 10, 11, 14 and 20, which depend from Claim 9, and Claims 12 and 13, which depend from Claim 11, are allowable for the same reasons as is Claim 9 and are

allowable, in addition by virtue of reciting other features that are not taught or suggested by *Li PA*. For example, Claim 10 recites a routing system in which the network topology information is generated periodically. Nothing in *Li PA* discusses generation of network topology information. *Li PA* merely discusses transmission of link state advertisements. Claim 11 recites a routing system that further comprises a transmitter for transmitting a message including network topology information. *Li PA* neither discusses a separate transmitter nor transmission of network topology information. Claim 12 recites a routing system where the transmitter transmits link state information to the routers at predetermined times. Again, *Li PA* neither discusses a separate transmitter nor transmission of network topology information. Claim 13 recites a routing system where the transmitter transmits the link state information periodically. And, again, *Li PA* neither discusses a separate transmitter nor transmission of network topology information. Claim 20 recites that the processor of each router, responsive to making a determination that no other router is currently accessible, performs control processing to determine how often and when to attempt to gather information relating to the network topology. *Li PA* does not suggest any such processing.

Independent Claim 4 is directed to a method of distributing network topology information in a radio network. As specified in Claim 4, the method comprises receiving link state information, determining connections of devices in the network from the received link state information, collecting the determined device connection information to generate network topology information, placing the generated network

topology information in the routing table, and retrieving the network topology information from the routing table.

Thus, the method of Claim 4 involves processing similar to that done by the processor of the router of Claim 1, with the addition of collecting the determined device connection information. Claim 4 is therefore also believed to be clearly allowable over *Li PA* for the same reasons as is Claim 1, and also by virtue of the additional collecting step.

Claims 5-8 and 19, which depend from Claim 4, are allowable for the same reasons as is Claim 4 and are allowable in addition by virtue of reciting other features that are not taught or suggested by *Li PA*. For example, Claim 5 recites a method wherein network topology information is generated periodically. Nothing in *Li PA* discusses generation of network topology information. *Li PA* merely discusses transmission of link state advertisements. Claim 6 recites a method that further comprises the step of transmitting a message including network topology information. *Li PA* neither discusses a separate transmitter nor transmission of network topology information. Claim 19 recites that, responsive to making a determination that no other router is currently accessible, control processing is performed to determine how often and when to attempt to gather information relating to the network topology. *Li PA* does not suggest any such processing.

Independent Claim 15 is directed to computer executable software code that performs a method having the same features as those recited in Claim 4, and Claim 15 also is therefore allowable over *Li PA*.

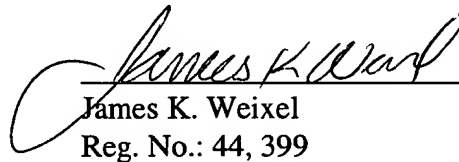
A review of the other art of record has failed to reveal anything that, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as a reference against the claims herein. Those claims are therefore believed patentable over the art of record.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

If there are any fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 07-2339. If an extension of time under 37 C.F.R. § 1.136 not accounted for above, is required, such an extension is requested and the fee should also be charged to our Deposit Account.

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